RESEARCH PAPER

Is household smoking status associated with expenditure on food at restaurants, alcohol, gambling and insurance? Results from the 1998–99 Household Expenditure Survey, Australia

M Siahpush, R Borland, M Scollo

....

See end of article for
authors' affiliations
....

Correspondence to:
Dr Mohammad Siahpush,
VicHealth Centre for
Tobacco Control, Cancer
Control Research Institute,
The Cancer Council
Victoria, 100 Drummond
Street, Carlton, VIC 3053,
Australia; mohammad.
siahpush@cancervic.org.
au

Received 31 July 2003
Accepted 14 July 2004
....

Aim: To examine how household expenditure on food at restaurants, alcohol, gambling and insurance vary between smoking and non-smoking households.
Design: Cross sectional survey of households from private dwellings, conducted by the Australian Bureau of Statistics (ABS), using a stratified multistage area sample design.
Setting: Australia, 1998–99.
Participants: Nationally representative sample of households (n = 6892).
Main outcome measures: Expenditure on meals at restaurants, alcohol, alcoholic beverages at licensed premises, gambling, and insurance.
Results: The odds of reporting expenditure on restaurant food and health insurance were 20% and 40% smaller for smoking than non-smoking households, respectively. The odds of reporting expenditure on alcohol (not including expenditure at licensed premises), drinking at licensed premises, and gambling were 100%, 50%, and 40% greater for smoking than for non-smoking households, respectively.
Conclusions: The study suggests that smokers are more likely to engage in risky behaviour. Implementing smoking bans in licensed premises and gambling venues can provide an opportunity to reduce smoking prevalence. Quitting or cutting down smoking can provide opportunities for expenditure on other products or services, and enhance standards of living.

Tobacco use is the largest single cause of mortality and morbidity in Australia. It is estimated to kill over 19 000 Australians each year and is responsible for about 10% of the entire national burden of disease and injury.[1] Pricing policy is an effective and a major strategy for reducing tobacco use.[2–4] Yet while price reduces consumption and saves money for those who quit, the effects on continuing smokers are less clear cut. Unless consumption declines in order to compensate for price increases or smokers transfer to cheaper brands, they will be left spending more on tobacco. Recent changes to tobacco taxes in Australia led to a reduction in price differentials between expensive and budget brands, reducing capacity to compensate by brand change.[5]

In Australia cigarettes currently cost about 36 cents per stick.[6] Therefore smoking 20 cigarettes per day would cost a smoker approximately A$50 per week. While this amount may be relatively trivial for someone with a high income, it is a considerable portion of total income for a person receiving welfare or minimum wage. Marsh and Dorsett in the UK found that among lower income families, smokers were more likely to report lacking food, shoes, coats, and other necessary items. They also reported that an increase in tobacco prices had the potential to exacerbate poverty for these families.[7] However, Harding and Percival mention that no clear evidence exists pertaining to an association between tobacco expenditure and a decline in expenditure on food and other essential household items in Australia.[8] There is scant research on how the spending habits of smokers and non-smokers differ, and this question has never featured in empirical works in Australia.

An Australian study on the economic impact of gambling reported that expenditure on gambling was positively associated with tobacco expenditure.[9] A similar finding was reported in a British study on the health related correlates of gambling expenditure.[10] Other relevant works do not examine expenditure per se, instead focusing on the association of addictive behaviours such as gambling, smoking, and drinking. For example, drinking has been associated with gambling[11–13] and an increase in tobacco consumption.[14] Alcohol consumption has been shown to increase the reward value of smoking; smokers look forward to and experience greater satisfaction from smoking after consumption of alcoholic than non-alcoholic drinks.[15] These expenditures, in addition to the money spent on smoking, suggest a reduction in expenditure on other items. What are smokers giving up? The answer to this question is not only relevant to standards of living and wellbeing, but would also help identify natural allies of tobacco control among industries—that is, those who stand to benefit if smoking prevalence is reduced.

The aim of this research was to examine how household expenditure patterns vary between smoking and non-smoking households. We focused on expenditure on meals at restaurants, alcohol, gambling, and insurance.

METHODS

Sample

The 1998–99 Household Expenditure Survey conducted by the Australian Bureau of Statistics (ABS) provides detailed information on expenditure, income, and household characteristics of a national sample of 6892 households from private dwellings.[16] A stratified multistage area sample design

....

Abbreviations: ABS, Australian Bureau of Statistics; IRSD, Index of Relative Socioeconomic Disadvantage; OECD, Organisation for Economic Cooperation and Development; SES, socioeconomic status

was utilised in which collection districts were selected at the first stage, blocks at the second stage, and dwellings at the last stage. The strata were local government areas in capital cities, and major urban centres, minor urban, and rural parts in other regions. Data collection involved personal interviews and two week expenditure diaries distributed among all residents aged 15 years and over from selected households. The response rate was 77%.

Measurement

Five household expenditure items were used as dependent variables. These include whether or not a household reported any expenditure in the past two weeks on: meals at restaurants, hotels or clubs; alcohol (not including expenditure at licensed premises); alcoholic beverages at licensed premises; and gambling including TAB (which are government run betting shops), poker machines and ticket machines, blackjack, roulette and other casino-type games, and club and casino broadcast games. We also included whether or not a household purchased health, life, house/content, and non-compulsory motor vehicle insurance. The reason we dichotomised expenditure instead of using the actual amount was the fact that a large proportion of households reported zero expenditure for the items we analysed. For example, as shown in table 1, 62.2% of households reported no expenditure on alcohol in pubs. This type of data is not appropriate for ordinary regression models where the outcome is assumed to have a normal distribution. We decided that the best analytic strategy was to dichotomise the variables and represent them with a binomial distribution in a generalised linear model. Furthermore, only information on net expenditure (that is,

amount spent minus amount won or awarded) was available for gambling and insurance. Thus, it was not possible to compute an exact amount for these expenditure items.

Respondents were asked to report expenditure on tobacco in the past two weeks. Smoking households were categorised as such if any member of that household reported tobacco expenditure. About 92.5% of reported tobacco expenditure pertained to cigarettes, and nearly all to smoking tobacco. Six measures of socioeconomic status were employed: income, education, occupation, unemployment, housing tenure, and Index of Relative Socioeconomic Disadvantage (IRSD).

We have computed equivalent household after-tax income. Household income in the Household Expenditure Survey refers to gross receipts of recurring and usually regular cash flows, and excludes in-kind income.[16] It includes employee, own business, property, and cash transfer income. It was set to zero when a household had a negative income, which occurred in 40 cases where there were losses from business or property. It should be noted that for families with zero income (or negative income) expenditures could still be positive because of dis-saving or borrowing. In order to adjust income for family size and composition we used the updated Organisation for Economic Cooperation and Development (OECD) equivalence scale of 1.0 for the first adult, 0.5 for each subsequent adult, and 0.3 for each child.[17] The application of equivalence scales allows for a comparison of the standards of living of households with varying size and composition.

Educational qualification of the head of household was divided into: without post-school qualification; basic/skilled vocational qualification, or undergraduate/associate diploma; and bachelors degree or higher. Occupation of the head of household was coded based on the Australian Standard Classification of Occupations[18] and divided into: blue collar, including tradespersons, production and transport workers, and labourers; white collar, including clerical, service, and sales workers; and professional, including managers, administrators, professionals, and associate professionals. We distinguished households with one or more unemployed persons. Housing tenure was divided into renter, purchaser, outright owner, and other (for example, rent-free occupation).

We used quintiles of IRSD, an area (geographic) socioeconomic index compiled at the Collection District level by the ABS.[19] Twenty aggregate variables were used in the construction of IRSD, some of which are: percentage of persons with no educational qualification, people with unskilled occupations, families with low income, dwellings with no motor cars, and people lacking fluency in English.

Analysis

The unit of analysis is the household. ABS uses the household as the unit of analysis because it is assumed that sharing of the use of goods and services occurs at this level. If smaller units such as the person is adopted, then it is difficult to know how to attribute to individual household members the use of shared items.[16] We used the statistical package Stata for all analyses.[20] Logistic regression was used to assess the association of smoking status and SES with the expenditure variables mentioned above. Jackknife replicate weights provided by the ABS were employed for the computation of standard errors.[16] This technique involves a data dependent way of estimating standard errors and takes into account the complex sample design.[21 22] Although computation of standard errors using replicate weights is labour intensive it does not require information on primary sampling units (or clusters) and stratification, which are not normally provided by the ABS.

Table 1 Household characteristics (n = 6892)

Variable	%
Smoking status	
Smoking household	33.2
Non-smoking household	66.8
Median equivalent income ($ per week)	531.5
Education	
No qualification	45.9
Diploma	35.2
Degree	15.8
Unknown	3.1
Occupation	
Blue collar	22.2
White collar	14.1
Professional	29.2
Not applicable	34.5
One or more unemployed persons	9.1
Housing tenure	
Renter	28.2
Purchaser	29.8
Owner	39.6
Other	2.4
Index of relative socioeconomic disadvantage	
First quintile (high disadvantage)	19.8
Second quintile	20.4
Third quintile	19.6
Fourth quintile	19.8
Fifth quintile (low disadvantage)	18.0
Unknown	2.4
Reported expenditure on meals at restaurants	48.6
Reported expenditure on alcohol (non-pub)	49.4
Reported expenditure on alcohol at pubs	37.8
Reported expenditure on gambling	27.1
Reported expenditure on health insurance	57.5
Reported expenditure on life insurance	20.3
Reported expenditure on house/content insurance	74.6
Reported expenditure on non-compulsory motor vehicle insurance	7.6

Source: 1998–1999 Household Expenditure Survey, Australia.

Caveat

We caution the reader against a possible ecological fallacy in interpreting the results. The unit of analysis was the household. We had no information on the smoking status or spending habits of individual members of each household, unless the household contained only one person. One-person households constituted 22.3% of the sample. We do not know if, within larger households, the individual who spent money on tobacco was the same person who spent money on, for example, gambling or alcohol. Thus caution must be exercised when generalising these results to individual behaviour. However, it is reassuring that when we limited analyses to one-person households, results stayed the same as when the full sample was used.

RESULTS

Table 1 presents the characteristics of the sample. Figure 1 shows that smoking households were less likely to report restaurant and insurance expenditure, but were more likely to report alcohol and gambling expenditure. We also computed adjusted level of restaurant and alcohol expenditure among households that reported such expenditure. Restaurant expenditure per week for smoking and non-smoking households was $25 and $26, respectively. Alcohol expenditure (not including licensed places) was $30 and $23, respectively. Alcohol expenditure in licensed places was 20 and $13, respectively. These figures are adjusted for the effect of sociodemographic confounders and computed by setting them to their respective mean.

Tables 2 and 3 provide adjusted odds ratios for the association of smoking status and socio-economic variables with expenditure items. Selected demographic variables are also controlled for. Crude odds ratios for the effect of smoking status are not reported because there was very little change in their magnitude after adjusting for other covariates. The odds of reporting expenditure on food at restaurants, health insurance, and house/content insurance were 20%, 40%, and 50% and significantly smaller for smoking than non-smoking households, respectively. The odds of reporting expenditure on alcohol (not including expenditure at licensed places), drinking at licensed venues, and gambling were 100%, 50%, and 40% greater for smoking than for non-smoking households, respectively.

To test whether the effect of smoking went beyond mere redistribution of the income spent on tobacco, we recomputed income subtracting spending on tobacco. When we reran the analyses, it made only negligible difference in the effect of smoking on the expenditure variables. Thus, the expenditure differences between smoking and non-smoking households were not due to the fact that smoking households had less income to spend.

We also performed analyses on smoking households only and examined the association of the amount spent on tobacco and other expenditures. The amount spent on tobacco was positively associated with expenditure on alcohol and drinking at licensed premises, and negatively associated with expenditure on insurance.

DISCUSSION

To our knowledge this was the first study to examine the association of household smoking status and expenditure on food at restaurants, alcohol, drinking at licensed premises, gambling, and insurance. While there are numerous expenditure items that we could have included in our study, our choice was partly related to the fact that proprietors are often concerned about the economic impact of smoke-free policies in the hospitality industry. While people acknowledge that non-smokers might spend more in venues once they are free of smoking, we were interested to explore whether households which do not purchase tobacco may spend money in public venues where there has been a total smoking ban (namely restaurants) and where smoking restrictions have recently been or are likely to be introduced (pubs/bars and gaming venues) in Australia. Our choice of expenditure items was also related to economic and policy implications of reduced tobacco use. We were interested, for example, to assess whether households without expenditure on tobacco tend to spend more in ways that might increase their long time financial independence—a key concern of governments considering the impact of an aging population. Households with medical and other forms of insurance are less likely to suffer financial catastrophes, and may well impose fewer demands on public health and social security systems.

The finding that non-smoking households are more likely to report expenditure on meals at restaurants suggests that future reductions in smoking prevalence may increase public patronage of these places. This would be consistent with the large body of evidence that smoke-free dining increases patronage and does not have adverse effects on sales.[23–26]

Previous research suggests a consistent pattern of risk taking behaviour among smokers.[27–29] Similarly, we found that smoking households are more likely to patronise pubs, consume alcohol, and gamble. It is known that smokers smoke more when they drink.[15 30] Research has shown that
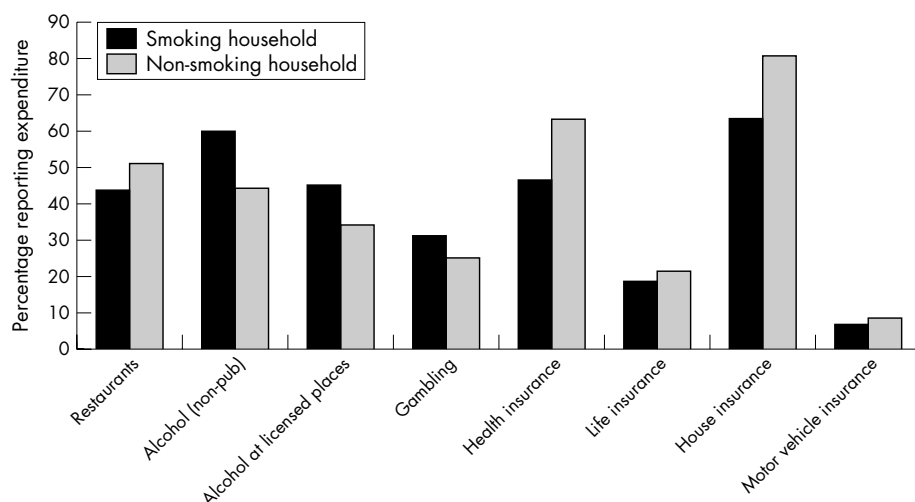
Figure 1 Percentage reporting expenditure on meals in restaurants, alcohol (non-pub), alcohol at licensed premises, gambling and insurance by smoking status of household.

Source: 1998–99 Household Expenditure Survey

Table 2 Adjusted odds ratios* (and 95% confidence intervals) for the relationship of smoking status and socioeconomic status (SES) variables with expenditure on selected items

Variables	Restaurants	Alcohol (non-pub)	Alcohol (pubs)	Gambling
Smoking status				
Smoking household	0.8 (0.7 to 0.9)	2.0 (1.8 to 2.3)	1.5 (1.4 to 1.7)	1.4 (1.2 to 1.6)
Non-smoking household	1	1	1	1
Equivalent income†	1.0 (1.0 to 1.0)	1.0 (1.0 to 1.0)	1.0 (1.0 to 1.0)	1.0 (1.0 to 1.0)
Education				
No qualification	1	1	1	1
Diploma	1.3 (1.1 to 1.5)	1.2 (1.0 to 1.4)	1.2 (1.0 to 1.4)	1.0 (0.9 to 1.2)
Degree	1.7 (1.4 to 2.0)	1.3 (1.1 to 1.6)	0.9 (0.8 to 1.1)	0.7 (0.6 to 0.8)
Unknown	1.3 (0.9 to 1.8)	1.0 (0.8 to 1.4)	1.1 (0.8 to 1.5)	1.1 (0.8 to 1.5)
Occupation				
Blue collar	1	1	1	1
White collar	1.4 (1.2 to 1.8)	1.0 (0.8 to 1.2)	1.2 (1.0 to 1.4)	1.2 (1.0 to 1.5)
Professional	1.6 (1.4 to 1.9)	1.0 (0.9 to 1.2)	1.4 (1.2 to 1.6)	1.2 (1.0 to 1.4)
Not applicable	0.8 (0.7 to 1.0)	0.6 (0.5 to 0.7)	0.7 (0.6 to 0.9)	1.1 (0.9 to 1.3)
Unemployment				
One or more unemployed	1.2 (0.9 to 1.5)	1.0 (0.8 to 1.3)	1.1 (0.9 to 1.3)	1.4 (1.2 to 1.8)
No-one unemployed	1	1	1	1
Housing tenure				
Renter	1	1	1	1
Purchaser	1.2 (1.0 to 1.4)	1.3 (1.1 to 1.5)	1.0 (0.9 to 1.2)	1.4 (1.2 to 1.6)
Owner	13.3 (1.1 to 1.5)	1.3 (1.1 to 1.5)	1.0 (0.9 to 1.2)	1.7 (1.4 to 2.0)
Other	1.0 (0.7 to 1.5)	1.1 (0.7 to 1.5)	1.0 (0.7 to 1.6)	1.0 (0.6 to 1.5)
Index of relative socioeconomic disadvantage				
First quintile (high disadvantaged)	1	1	1	1
Second quintile	1.1 (0.9 to 1.3)	1.1 (0.9 to 1.3)	1.2 (1.0 to 1.4)	0.8 (0.7 to 1.0)
Third quintile	1.2 (1.0 to 1.5)	1.2 (1.0 to 1.5)	1.2 (1.0 to 1.5)	0.9 (0.8 to 1.1)
Fourth quintile	1.4 (1.1 to 1.6)	1.3 (1.1 to 1.6)	1.3 (1.1 to 1.6)	0.9 (0.7 to 1.1)
Fifth quintile (low disadvantaged)	1.6 (1.3 to 1.9)	1.3 (1.1 to 1.6)	1.3 (1.1 to 1.6)	0.8 (0.6 to 0.9)
Unknown	1.4 (1.1 to 1.8)	1.4 (1.1 to 1.8)	1.4 (1.1 to 1.8)	0.9 (0.7 to 1.2)

Source: 1998–1999 Household Expenditure Survey, Australia.
*Odds ratios pertain to odds of having spent any money on the particular expenditure item. In the restaurant analysis, in addition to SES variables, number of household members older than 14 is controlled for. In the analyses related to alcohol, pubs/clubs and gambling expenditure, in addition to SES variables, the number of household members older than 17 is controlled for.
†All odds ratios for equivalent income are slightly greater than unity and significant (p<0.05).

Table 3 Adjusted odds ratios* (and 95% confidence intervals) for the relationship of smoking status and SES variables with health, life, and house/content, motor vehicle insurance

Variables	Health	Life	House/content	Motor vehicle
Smoking status				
Smoking household	0.6 (0.5 to 0.7)	0.8 (0.7 to 1.0)	0.5 (0.4 to 0.6)	0.8 (0.7 to 1.1)
Non-smoking household	1	1	1	1
Equivalent income†	1.0 (1.0 to 1.0)	1.0 (1.0 to 1.0)	1.0 (1.0 to 1.0)	1.0 (1.0 to 1.0)
Education				
No qualification	1	1	1	1
Diploma	1.3 (1.1 to 1.4)	1.2 (1.0 to 1.4)	1.2 (1.0 to 1.5)	1.4 (1.1 to 1.8)
Degree	1.3 (1.0 to 1.6)	0.9 (0.7 to 1.1)	1.0 (0.8 to 1.4)	0.8 (0.6 to 1.1)
Unknown	1.1 (0.8 to 1.4)			0.8 (0.4 to 1.6)
Occupation				
Blue collar	1	1	1	1
White collar	1.1 (0.9 to 1.4)	1.1 (0.9 to 1.4)	1.5 (0.6 to 1.4)	0.9 (0.6 to 1.3)
Professional	1.5 (1.2 to 1.8)	1.5 (1.2 to 1.8)	1.2 (0.9 to 1.6)	1.0 (0.7 to 1.3)
Not applicable	0.8 (0.6 to 0.9)	0.5 (0.4 to 0.6)	1.0 (0.8 to 1.3)	1.0 (0.7 to 1.3)
Unemployment				
One or more unemployed	1.6 (1.3 to 2.0)	1.5 (1.1 to 2.0)	2.0 (1.5 to 2.6)	1.5 (1.0 to 2.3)
No-one unemployed	1	1	1	1
Housing tenure				
Renter	1	1	1	1
Purchaser	2.2 (1.9 to 2.6)	2.2 (1.8 to 2.7)	39.0 (29.9 to 51.0)	2.4 (1.7 to 3.4)
Owner	3.5 (3.0 to 4.0)	2.0 (1.7 to 2.5)	27.6 (22.3 to 34.1)	3.3 (2.4 to 4.6)
Other	1.8 (1.2 to 2.6)	1.8 (1.1 to 2.9)	1.8 (1.2 to 2.6)	1.7 (0.8 to 3.8)
Index of relative socioeconomic disadvantage				
First quintile (high disadvantaged)	1	1	1	1
Second quintile	1.3 (1.1 to 1.6)	1.2 (1.0 to 1.5)	1.4 (1.1 to 1.8)	1.2 (0.8 to 1.7)
Third quintile	1.3 (1.1 to 1.5)	1.0 (0.8 to 1.2)	1.4 (1.1 to 1.8)	1.1 (0.8 to 1.6)
Fourth quintile	1.4 (1.2 to 1.7)	1.1 (0.9 to 1.4)	1.3 (1.0 to 1.7)	1.0 (0.7 to 1.4)
Fifth quintile (low disadvantaged)	1.5 (1.2 to 1.8)	1.1 (0.9 to 1.4)	1.3 (1.0 to 1.8)	0.8 (0.5 to 1.1)
Unknown	0.8 (0.6 to 1.0)	1.2 (0.8 to 1.6)	1.4 (1.0 to 1.9)	0.7 (0.4 to 1.2)

Source: 1998–1999 Household Expenditure Survey, Australia.
*Odds ratios pertain to odds of having spent any money on the particular expenditure item. All results control for family size.
†Odds ratios for equivalent income are greater than unity and significant (p<0.05) for all models except life insurance where the odds ratio is smaller than unity and non-significant (p=0.08).

smoking bans in enclosed public places are likely to encourage cessation, reduce prevalence,[31] and lead to more favourable attitudes towards further smoking bans.[32–34] There is also evidence that introduction of smoking bans in licensed premises and gaming venues is not associated with lower profit levels and patronage. A recent Australian study showed that the introduction of smoke-free law had no effect on sales turnover in hotels and licensed clubs.[35] Another study found no association of smoke-free ordinances with profits from bingo and charitable games in Massachusetts.[36] Thus implementing smoking bans in licensed premises and gambling venues directly targets a large group of smokers and can provide an opportunity to reduce smoking prevalence.

The association of smoking with lower likelihood of expenditure on insurance is consistent with research indicating that drug dependent individuals are more impulsive than others and more likely to select immediate available consumption of the addictive drug over a variety of deferred prosocial rewards.[37] The observed association is also consistent with the finding that smokers discount the value of delayed financial rewards (such as being reimbursed for medical expenses, or not having to pay hospital bills) more than non-smokers.[38]

The finding that the effect of smoking status on expenditure is robust to the removal of smoking expenditure from income is of considerable interest. It means that the effect is not simply a result of less income to spend in these areas. It also suggests that residual confounding (at least for income) is unlikely to be a potential cause of the effect. The findings strongly suggest that being a smoker is associated with personality traits or lifestyles that affect consumption choices. There are particular policy implications of the consumption choices. It seems reasonable to expect more opposition from smokers to smoking restrictions in venues that they are more likely to frequent. This seems to be the case, although much of the opposition comes not from smokers themselves but from the tobacco industry or lobby groups linked to the tobacco industry. Thus in Australia, since the data reported in this paper were collected there have been extensive moves towards banning smoking in restaurants,[39] but far less progress on restricting smoking in gambling venues and bars. The findings on use of insurance have quite different implications. The finding of reduced expenditure on health insurance is of considerable concern. Smokers are more likely to get ill and thus have more to benefit from having health cover. Action to correct this imbalance is unlikely to come from the insurers who benefit when high risk individuals choose not to be insured, so governments may need to take up the role of warning smokers about the financial dangers they are subjecting themselves to. That this lack of use of insurance seems to generalise to other forms suggests that smokers have a general reduced concern over managing their futures and are putting themselves at increased financial risk across the board. This may result in smokers suffering increased economic disadvantage in the future over and above the disadvantage wrought simply by their wasteful (and self harming) expenditure on tobacco. More research is needed to understand better the roles smoking might play in the development and perpetuation of economic disadvantage.

The cross sectional nature of this correlational study does not allow strong inferences about the causal direction of relationships. It is plausible that expenditure on tobacco reduces the funds available to a household for expenditure on other goods and services. However, in some cases, consumption of certain goods may lead to an increase in smoking or vice versa. For example, people who drink are less likely to be able to quit[40] and are more likely to consume more cigarettes

What this paper adds

Little is known about the relationship between tobacco expenditure and other types of expenditure. Past research has reported a positive association between tobacco and gambling expenditure, along with an increase in smoking following alcohol consumption. This study found that smoking households were less likely to report expenditure on food at restaurants and on insurance, and more likely to report expenditure on alcohol, drinking at licensed premises, and gambling, than non-smoking households.

when they drink alcohol, since cigarettes provide greater satisfaction following alcohol consumption.[15]

We note again that this research does not provide evidence for a causal link between expenditure on smoking and expenditure on other products or services. In particular, we do not know whether smoking cessation will increase expenditure on meals at restaurants or insurance, and reduce expenditure on alcohol and gambling. The influence of personality or another endogenous factor on smoking and other risk-taking behaviour may indicate that cessation would have little impact on expenditure on other items such as those studied here. Nevertheless quitting smoking, or cutting down, does increase household funds, consequently providing increased opportunities for expenditure on other products or services that may improve quality of life.

. . . .

Authors' affiliations
M Siahpush, R Borland, M Scollo, VicHealth Centre for Tobacco Control, The Cancer Council Victoria, Melbourne, Victoria, Australia

Related papers: Siahpush M, Borland R, Scollo M. Smoking and financial stress in Australia. *Tobacco Control* 2003;**12**:60–6. This paper is similar to the current paper in that it examines the relationship between household tobacco expenditure, the inability to afford essential household items, and financial stress.

REFERENCES
1 **Australian Institute of Health and Welfare**. *Australia's health*. Canberra: Australian Government Publishing Services, 2002.
2 **Meier K**, Licari M. The effect of cigarette taxes on cigarette consumption, 1955 through 1994. *Am J Public Health* 1997;**87**:1126–30.
3 **Chollat-Traquet C**. *Evaluating tobacco control activities*. Geneva: World Health Organization, 1996.
4 **Townsend J**. Price and consumption of tobacco. *Br Med Bull* 1996;**52**:132–42.
5 **Scollo M**, Freeman J, Wakefield M. *Early evidence of impact of recent reforms to tobacco taxes on tobacco prices and tobacco use in Australia*. National Tobacco Campaign Evaluation, Vol 3. (in press).
6 **The New South Wales Retail Tobacco Trader's Association**. Price of Peter Jackson 30s. *The Australian Retail Tobacconist* 2003;**4/5**:10.
7 **Marsh A**, McKay S. *Poor smokers*. London: Policy Studies Institute, 1994.
8 **Harding A**, Percival R. *Who smokes now? Changing patterns of expenditure on tobacco products in Australia, 1975–76 to 1993–94*. Canberra: NATSEM, University of Canberra, 1997.
9 **National Institute of Economic and Industry Research**. *The economic impact of gambling: project report*. Melbourne: Victorian Casino and Gambling Authority, 2000.
10 **Reid S**, Woodford SJ, Roberts R, *et al*. Health-related correlates of gambling in the British National Lottery. *Psychological Reports* 1999;**84**:247–54.
11 **Arseneault L**, Ladouceur R, Vitaro F. Gambling and consumption of psychotropic drugs: prevalence, coexistence and consequences. *Canadian Psychology* 2001;**42**:173–84.
12 **Ladouceur R**, Boudreault N, Jacques C, *et al*. Pathological gambling and related problems among adolescents. *J Child Adolesc Substance Abuse* 1999;**8**:55–68.
13 **Fisher EB**, Lichtenstein E, Haire-Joshu D. Multiple determinants of tobacco use and cessation. In: Orleans CT, Slade J, eds. *Nicotine addiction: principles and management*. Oxford: Oxford University Press, 1993.
14 **van Reek J**, Adriannse H, Knibbe R. Alcohol consumption and correlates among children in the European Community. *Int J Addictions* 1994;**29**:15–21.
15 **Glautier S**, Clements K, White JAW, *et al*. Alcohol and the reward value of cigarette smoking. *Behav Pharmacol* 1996;**7**:144–54.
16 **Australian Bureau of Statistics**. *Household Expenditure Survey, Australia, user guide, 1998–1999 (6527.0)*. Canberra: AGPS, 2000.

17 **Mejer L**, Siermann C. *Income poverty in the European Union: children, gender and poverty gaps.* Statistics in Focus: Eurostat, 2000.
18 **Australian Bureau of Statistics**. *ASCO, Australian standard classification of occupations (Catalogue No. 1220.0).* Canberra: Australian Government Publishing Services, 1997.
19 **Australian Bureau of Statistics**. *Socio-economic indexes for areas (2912.0).* Canberra: AGPS, 1991.
20 **StataCorp**. *Stata Statistical Software: Release 7.0, Special Edition.* College Station, Texas: Stata Corporation, 2002.
21 **Lohr SL**. *Sampling: design and analysis.* Pacific Grove: Duxbury Press, 1999.
22 **Wolter KM**. *Introduction to variance estimation.* New York: Springer-Verlag, 1985.
23 **Scollo M**, Lal A, Hyland A, *et al*. A review of the quality of studies on the economic effects of smoke-free policies on the hospitality industry. *Tobacco Control* 2003;**12**:13–20.
24 **Wakefield M**, Siahpush M, Scollo M, *et al*. The effect of a smoke-free law on restaurant business in South Australia. *Aust N Z J Public Health* 2002;**26**:375.
25 **Hyland A**, Cummings KM. Consumer response to the New York City Smoke-Free Air Act. *J Public Health Manag Prac* 1999;**5**:28–36.
26 **Glantz SA**. Smokefree restaurant ordinances don't affect restaurant business. Period. *J Public Health Manag Prac* 1999;**5**:vi–ix.
27 **Carr-Gregg M**, Enderby K, Grover S. Risk-taking behaviour of young women in Australia: screening for health-risk behaviours. *Med J Australia* 2003;**178**:601–4.
28 **Zakarian JM**, Hovell MF, Conway TL, *et al*. Tobacco use and other risk behaviors: cross-sectional and predictive relationships for adolescent orthodontic patients. *Nicotine Tob Res* 2000;**2**:179–86.
29 **Viscusi WK**, Hersh J. Cigarette smokers as job risk takers. *The Review of Economics and Statistics* 2001;**83**:269–80.
30 **Batel P**, Pessione F, Maitre C, *et al*. Relationship between alcohol and tobacco dependencies among alcoholics who smoke. *Addiction* 1995;**9**:977–80.
31 **US Department of Health and Human Services**. *Reducing tobacco use: a report of the Surgeon General.* Atlanta, Georgia: Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2000.
32 **Wakefield M**, Roberts L, Owen N. Trends in prevalence and acceptance of workplace smoking bans among indoor workers in South Australia. *Tobacco Control* 1996;**5**:205–8.
33 **Borland R**. Changes in prevalence of and attitudes to restrictions on smoking in the workplace among indoor workers in the state of Victoria, Australia, 1988–1990. *Tobacco Control* 1992;**1**:19–24.
34 **Borland R**, Owen N, Hill DJ, *et al*. Changes in acceptance of workplace bans following their implementation: a prospective study. *Prev Med* 1990;**19**:314–22.
35 **Lal A**, Siahpush M, Scollo M. The economic impact of smoke-free legislation on sales turnover in restaurants and bars in Tasmania. *Tobacco Control* 2004;**13**:454–5.
36 **Glantz SA**, Wilson-Loots R. No association of smoke-free ordinances with profits from bingo and charitable games in Massachusetts. *Tobacco Control* 2003;**12**:411–13.
37 **Logue AW**. *Self-control.* Englewood Cliffs, New Jersey: Prentice Hall, 1995.
38 **Bickel WK**, Odum AL, Madden GJ. Impulsivity and cigarette smoking: delay discounting in current, never and ex-smokers. *Psychopharmacology* 1999;**146**:447–54.
39 **Chapman S**, Borland R, Lal A. Has the ban on smoking in New South Wales restaurants worked? A comparison of restaurants in Sydney and Melbourne. *Med J Aust* 2001;**174**:512–15.
40 **Hymowitz N**, Cummings KM, Hyland A, *et al*. Predictors of smoking cessation in a cohort of adult smokers followed for five years. *Tobacco Control* 1997;**6**:s57–s62.

The Lighter Side

© Jeff Parker, Florida Today